

Peer Review

Review of: "An Explanation for Dreaming Based on Neuronal Maintenance"

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The article addresses a state of sleep that remains underappreciated in psychological and neurological research, despite offering a unique opportunity to gain insight into brain function and the generation of conscious experience. Advances in research methods and neuroscience compel a re-evaluation of both new observations and long-established facts. The author therefore refers to well-known theories of consciousness, such as the Global Workspace Theory (GWT). However, the author overlooks the fact that while GWT posits that broadcasting enables conscious access, it fails to explain *how* and *where* this awareness arises. Given the growing doubts regarding GWT's ability to account for first-person phenomenal experience, relying solely on the term "broadcasting" appears insufficient—particularly in light of the emergence of more convincing models of phenomenal consciousness, notably Lamme's Recurrent Processing Theory (RPT) and its further development in the Motivated Emotional Mind (MEM) model proposed by Galus and Starzyk. (2020, Reductive Model of the Conscious Mind, DOI: 10.4018/978-1-7998-5653-5; 2025, [A new physicalist model of consciousness: a proposal](#))

The author accurately identifies the distinction between states of consciousness and REM sleep states, highlighting the lack of volitional control over dream content and progression. However, choosing to interpret this distinction through the lens of the conceptually impotent GWT does not allow for a credible explanation of its underlying mechanisms.

The author's central hypothesis—that an "exercise" effect resulting from neural activation may occur whether the subject is awake or asleep—is thought-provoking. He also rightly notes that one key difference between sleep and anaesthesia is the suppression of sensory processing in the latter.

Observations concerning energy conservation as a product of evolutionary processes appear valid. Nonetheless, incorporating the assumptions of the RPT and MEM models offers a much more coherent explanation of how evolution has led to a partial segregation of brain functions when bodily activity is

constrained. In such states, not only can the peripheral nervous system be partially deactivated, but the motor cortex may also show reduced activity. During REM sleep, for instance, feedback signals from the motor cortex that would normally indicate behavioural responses are not transmitted back to sensory areas. As a result, our internally generated visualisations in dreams are unable to influence the dream scenario in terms of bodily responses.

The MEM model, it seems, also offers a better explanation for why REM sleep dreams often take the form of extended narratives resembling films in which we participate consciously. This interpretation is arguably more compelling than the role attributed to an “interpreter,” a notion that too closely resembles the problematic concept of a homunculus—unless, that is, we understand the interpreter as referring to the categorisation, generalisation, and associative processes described by the MEM model (2024 [What is Thought?](#)).

The author should also consider whether the neural activity he emphasises might arise spontaneously as a byproduct of the cyclical nature of cellular life processes. While a teleological interpretation, as proposed by the author, cannot be ruled out entirely, it remains neither widely accepted nor empirically substantiated.

The author writes: “...even in adults, most dreams are not consciously recognized. These observations imply that whatever function dreams have, it does not require awareness of content.”

According to the MEM model, awareness necessarily involves phenomenal experience. One of the model’s central claims is that no sensation can be felt without sensory activation, either through direct perception or through feedback activation of sensory areas. If we see images or hear voices in dreams, it follows that we are conscious of them on the level of perceptual awareness. What may be absent, however, is the explicit recognition or understanding of what is happening in the dream. Often, the flow of dream events is strongly surreal, which suggests that understanding or interpreting dream content is not a prerequisite for perceptual phenomenal consciousness.

When discussing “random activity in consciousness-generating circuits,” it would be appropriate to reference the concept of *mental saccades* introduced by Janusz Starzyk (DOI: 10.1109/IJCNN.2011.6033262).

The scientific value of the article is significantly diminished by its lack of engagement with the most recent theories of consciousness, leading to several misinterpretations of key phenomena. Nonetheless, the article’s core observations remain valid, and when integrated with future advances in our understanding of the nature of consciousness, they may find strong neurobiological justification.

Declarations

Potential competing interests: No potential competing interests to declare.